

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2003-084152

(43)Date of publication of application : 19.03.2003

(51)Int.Cl.

G02B 6/122

(21)Application number : 2001-272597

(71)Applicant : NGK INSULATORS LTD

(22)Date of filing : 07.09.2001

(72)Inventor : MITOMI OSAMU  
ICHIKI TAKENORI  
OSHIMA MASATSUGU  
OKUMURA ATSUSHI  
YAMASHITA MASATAKA

## (54) OPTICAL DEVICE

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain effective mode conversion in an optical device and to improve the coupling efficiency with another optical device in the incident part and outgoing part of light.

**SOLUTION:** In the optical device 10A equipped with a clad layer 14 formed on a substrate 12 and a core layer 16 formed in the clad layer 14, the core layer 16 is composed of an incident part 16a where light enters, a light controlling part 16b where the mode of the guided light from the incident part 16a is converted, and a light outgoing part 16c where the guided light having a converted mode by the light controlling part 16b exits. The layer thickness of the light controlling part 16b is gradually changed with respect to the propagation direction of the guided light so that the mode size in the perpendicular direction to the substrate 12 of the guided light is mode-converted by the light controlling part 16b.

FIG. 2

